

IN THE CLAIMS:

Please amend claim 17 as follows:

B' 1        17. A semiconductor device according to claim 2,  
2        wherein said first and second conductive layers are  
3        filled in first and second through-holes, and the upper  
4        ends thereof are connected to said first and second  
5        conductive layers, and the spatial intervals in the  
6        arrays of said first and second conductive layers are  
7        smaller than those in the arrays of said first and second  
8        through-holes.

REMARKS

Entry of the present amendment and reconsideration of the above-identified application in view of the present amendment is respectfully requested.

The present amendment merely corrects the indefiniteness concern of the Examiner. Accordingly the present amendment merely removes issues from further consideration.

Turning to the rejection of claims in view of cited documents, these rejections are respectively traversed.

With regard to the rejection of claims in view of U.S. Patent No. 5,311,048 to Takahashi et al., it is again stressed that the Takahashi patent fails to provide all of the claim limitations provided in independent claim 1. Focusing specifically on the newly presented response remarks, the Takahashi patent provides no discussion regarding capacitance permittivity, specific inductive capacitance, or dielectric

properties of any of the materials of the described device. The Office action asserts that the Takahashi patent inherently teaches to determine a distance between conductive layers in accordance with permittivity. Specifically, the Office action states that effective control of capacitance is essential in achieving optimum electrical characteristics. Putting aside the broader question of whether the Takahashi patent teaches anything about design concerning capacitance issues for the moment, it is first queried whether the Takahashi device provides for effective control of capacitance and whether optimum electrical characteristics are present in the Takahashi device. It is explicitly asked of the Examiner if and how the Examiner knows (1) that capacitance needs to be controlled in the Takahashi device, (2) that capacitance is in fact controlled in the Takahashi device, and (3) that optimum electrical characteristics are present in the Takahashi device.

It seems completely realistic that since the Takahashi makes no mention of capacitance issues, that capacitance issues are of no/little consequence or are ignored. Also, it is completely realistic that the Takahashi device does not have optimized electrical characteristics. In fact, the Takahashi device may not even need control of the capacitance issues (i.e., many devices have capacitance occurrence that does not affect operation and is thus of little or no consequence and is not addressed). Again, the lack of discussion indicates a lack of appreciation on the part of the Takahashi patent. Certainly the Takahashi patent does not

provide any clear teachings of a predetermination approach, and owing to the specificity of a predetermination approach, it is very unlikely that the Takahashi device just happens to inherently provide for such a predetermined approach.

Again, since the Examiner appears to be of the opinion that the Takahashi device has all of the needed qualities, the Examiner is explicitly requested to answer the queries of if and how the Examiner knows (1) that capacitance needs to be controlled in the Takahashi device, (2) that capacitance is in fact controlled in the Takahashi device, and (3) that optimum electrical characteristics are present in the Takahashi device. Only then could one even begin to consider whether there is a teaching about design concerning capacitance issues, and specifically whether there is a teaching concerning determined distance, which of course are lacking.

For the reasons set forth in the previous response and herein, and for the shortcoming concerning the queries presented herein, it is respectfully submitted that the claims are allowable over the Takahashi patent.

Turning to U.S. Patent No. 4,954,877 to Nakanishi et al. and focusing specifically on the newly presented response remarks, the Examiner's position to conveniently deny patentable weight to the term "semiconductor device" is wholly wrong. The claimed device is a semiconductor device. This is a widely known and accepted term of art. The person of ordinary skill in the art knows what is and is not a semiconductor device. It is clear from the Nakanishi patent,

and very clear from the Examiner's actions, that the Nakanishi device is not a semiconductor device.

In an effort to avoid the problem that the Nakanishi device is not a semiconductor device, the Examiner has decided not to give patentable weight to the claim limitation "semiconductor device." However, such a lack of consideration is not proper. In Kropa v. Robie, 187 F.2d 150, 88 USPQ 478 (CCPA 1951), which was cited by the Examiner, the court actually held that the preamble is essential to point out the invention (Id., 88 USPQ 478 at 481, stating "essential to point out the invention"). The court went on to state that the "introductory words give life and meaning . . . for it is only by that phrase that it can be known." In the present situation, the claims are clearly directed to a semiconductor device. As such, the recitation of semiconductor device is essential to point out the invention and must be given patentable weight. The Examiner's desire to deprive patentable weight would actually impermissibly broaden the claims. It is respectfully submitted that the Examiner cannot impermissibly broaden the applicants' claims. Such was precisely the attempt that was made within the other case law (In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976)) cited by the Examiner. Specifically, note that the facts of Hirao indicate that there was a previous refusal to give patentable weight (Id. 190 USPQ 15 at 17). However, it was held that the refusal to give patent weight to the preamble "would improperly broaden the scope of the claim." Id. 190 USPQ 15

at 18 (emphasis original). As such, the lower decision was reversed in favor of the patent applicant.

As such, it is not proper for the Examiner to refuse to give patentable weight and impermissibly broaden the Applicants' claims and thereby have the broadened claims purportedly read on the Nakanishi patent. Accordingly, it is respectfully submitted that the claims are allowable over the Nakanishi patent.

Turning to U.S. Patent No. 5,598,029 to Suzuki and focusing specifically on the newly presented response remarks, the Examiner is improperly attempting to transfer teachings from one portion/aspect of the Suzuki device to a wholly unrelated portion/aspect. Apparently, the Examiner presumes that since first and second conductive layers 7a, 7b are near each other and are power and ground lines, respectively, that a capacitance occurs. However, the Examiner then makes a presumptive jump similar to that made for the Takahashi patent. As such, it is first queried whether the Suzuki device provides for effective control of capacitance between layers 7a and 7b, and whether optimum electrical characteristics are even present in the Suzuki device at the Layer 7a and 7b. It is explicitly asked of the Examiner if and how the Examiner knows (1) that capacitance needs to be controlled in the Suzuki device between layers 7a and 7b, (2) that capacitance between layers 7a and 7b is in fact controlled in the Suzuki device, and (3) that optimum electrical characteristics are present in the Suzuki device between layers 7a and 7b.

It seems completely realistic that since the Suzuki patent makes no mention of capacitance issues at the power supply and ground lines (i.e., layers 7a and 7b), that capacitance issues are of no/little consequence or are ignored. Also, it is completely realistic that the Suzuki device does not have optimized electrical characteristics at the power supply and ground lines (i.e., layers 7a and 7b). In fact, the Suzuki device may not even need control of the capacitance issues at the power supply and ground lines (i.e., layers 7a and 7b). Many devices have capacitance occurrence that does not affect operation and is thus of little or no consequence and is not addressed. Again, the lack of discussion indicates a lack of appreciation on the part of the Suzuki patent. Certainly the Suzuki patent does not provide any clear teachings of a predetermination approach for the power and ground lines, and owing to the specificity of a predetermination approach, it is very unlikely that the Suzuki device just happens to inherently provide for such a predetermined approach. This is especially likely in view of the discussion that actually is present in the Suzuki patent. The Examiner's assertion that "the" capacitance will occur between the power supply line and the ground line is just not sufficient.

Again, the Examiner is explicitly requested to answer the queries of if and how the Examiner knows (1) that capacitance needs to be controlled in the Suzuki device at the power supply and ground lines (i.e., layers 7a and 7b), (2) that capacitance is in fact controlled in the Suzuki device at the

power supply and ground lines, and (3) that optimum electrical characteristics are present in the Suzuki device at the power supply and ground lines. Only then could one even begin to consider whether there is a teaching about design concerning capacitance issues, and specifically whether there is a teaching concerning determined distance, which of course are lacking.


Accordingly, the Suzuki patent, as interpreted within the Office action, necessarily fails to satisfy all of the limitations of the claims. Accordingly, all of the claims are allowable in view of the Suzuki patent.

In view of the forgoing, it is respectfully submitted that the above-identified application is in condition for allowance and allowance of the above-identified application is respectfully requested. If the Examiner is of the opinion that some issue remains that might prevent swift allowance of the subject application, the Examiner is invited to contact the applicants' representative via telephone.

If there are any fees required by the foregoing  
Amendment, please charge the same to our Deposit Account  
No. 16-0820, our Order No. 32811.

Respectfully submitted,

PEARNE & GORDON LLP

By:   
Ronald M. Kachmarik, Reg. No. 34512

526 Superior Avenue East  
Suite 1200  
Cleveland, Ohio 44114-1484  
(216) 579-1700

Date: Fe 6/10, 2003



VERSION SHOWING CHANGES MADE

IN THE CLAIMS:

Claim 17 was amended as follows:

1           17. (twice amended)       A semiconductor device  
2   according to claim 2, wherein said through-hole into  
3   which said second conductive layer is filled is a first  
4   through-hole, said first [and second] conductive layer  
5   being [layers are] filled in a second through-hole [first  
6   and second through-holes], and the upper ends thereof are  
7   connected to [said] first and second metallic  
8   [conductive] layers, and the spatial intervals in the  
9   arrays of said first and second metallic [conductive]  
10   layers are smaller than those in the arrays of said first  
11   and second through-holes.